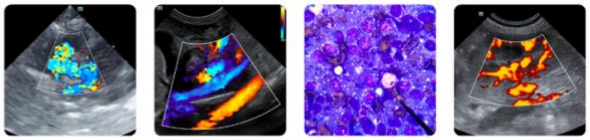

PATIENT

Rosie Aviles

SPECIES

Canine

BREED

Mini Schnauzer

SEX

Female

AGE

11 Months

WEIGHT

2.6 kg

INTERPRETED BY

Eric Lindquist, DMV, DABVP (CFM), Cert. IVUSS

IMAGING PERFORMED BY

Dr. Sarah Barthelemy

HOSPITAL NAME

Douglas Square PC

REFERRING VET

Dr. Singla

INVOICE

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PRESENTING CLINICAL SIGNS

- No clinical signs - doing well
- Small for age-breed
- Pre-anesthetic screen showed mild ALT elevation, SBA 2 months ago had post elevation of 44
- SBA repeated in Feb and pre is normal but post is 287. ALT continues to be mildly elevated and no other changes
- Abnormal PE/Chem/CBC/UA Results: Elevated post SBA at 287 (was 44 two months ago) and mild ALT elevation

ULTRASONOGRAPHIC EXAMINATION OF THE ABDOMEN

Urinary System

The **urinary bladder**, trigone, and pelvic urethra presented normal thicknesses and normal tone. The ureters were not visible which is normal. No uroliths or sediment were visualized and anechoic urine was present. No evidence of inflammatory or neoplastic changes were noted. Ureteral papillae were normal. The pelvic urethra was imaged 1.0 cm beyond the cystourethral junction.

The **kidneys** revealed normal size and structure, corticomedullary definition and ratio for this age. The cortices presented largely uniform texture with normal echogenic relationship to liver and spleen. Medullary structure differed distinctly from the cortex, and no evidence of pelvic dilation was present. The capsules were acceptably uniform without significant irregularities. The left kidney measured 3.75 cm. The right kidney measured 3.47 cm.

Adrenal Glands

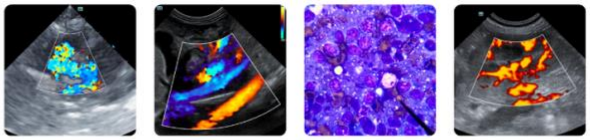
Both **adrenal glands** were visualized and recognized as having normal shape, size, position and echogenicity for this breed. The phrenic vasculature, glandular echogenicity and detail were unremarkable. Capsule, cortex, and medullary definition were normal for this age patient. The right adrenal gland measured 0.35 cm at the cranial pole and 0.31 cm at the caudal pole. The left adrenal gland measured 0.29 cm at the cranial pole and 0.3 cm at the caudal pole.

Spleen

The **spleen** presented a smooth homogeneous parenchyma hyperechoic to liver and renal cortical parenchyma. The capsule was smooth without noticeable expansion or deviation from within the spleen or adjacent pathology. The splenic vasculature demonstrated normal volume without signs of congestion or thrombosis. No sonographic evidence of acute or chronic inflammatory, neoplastic, or infarctual changes were noted.

Liver

The **liver** was mildly subnormal in size. The gallbladder and common bile duct were unremarkable. Hepatic vein inflow to the vena cava was normal. No evidence of intrahepatic shunting. The vena cava/aortic ratio was 1:1, measuring approximately 0.5 cm each. The portal vein measured 0.5 cm. The portal vein at its termination measured approximately 0.44 cm. The portal vein at the portal hilus appeared normal, as did the branching of the portal vein. The portal vein/vena cava ratio was 0.9.



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Gastrointestinal

Examination of the **gastrointestinal tract** revealed a stomach and intestine free of stasis, of normal wall thickness, acceptable curvilinear mural detail, and peristaltic activity. Small and large intestine demonstrated normal luminal chyme and stool consistency respectively. No obstructive or overt infiltrative disease was noted. No associated abnormal lymphatic activity was noted.

Pancreas

The base and limbs of the **pancreas** were observed to be largely isoechoic to surrounding omental fat. Pancreatic duct and capsular contour were acceptably normal and parenchyma respected normal curvilinear patterns. No overt evidence of active inflammatory or neoplastic disease was noted.

Free Abdomen

The mesenteric **lymph nodes** were juvenile/mildly enlarged, measuring 2.2 cm x 0.7 cm.

ULTRASONOGRAPHIC FINDINGS

- Microhepatica without evidence of macroscopic shunting- microvascular dysplasia/portal hypoplasia + an inflammatory insult may be playing a role in creating the severe elevation of bile acids.
- Juvenile mesenteric lymph nodes

INTERPRETATION OF THE FINDINGS & FURTHER RECOMMENDATIONS

Core liver biopsy is warranted. CT with contrast may be optimal in this patient to absolutely rule out the potential of shunting yet all the typical views of portosystemic shunting were obtained, and the portal vein maintained a decent volume, as it enters into its branching at the portal hilus, however, a small extrahepatic shunt, such as a splenoazygos shunt cannot be completely ruled out. I believe a gastroazygos shunt, as well as all other extrahepatic shunts have been ruled out. Liver biopsy would be ideal for further definition, along with CT with contrast; these may be obtained simultaneously under sedation.

Hepatic Support for Bile Acid Elevation +/- Hepatic Encephalopathy

Royal Canin Hepatic Support diet or Hills L/D, **Metronidazole** (7.5 mg/kg PO bid) over the next 14 days, **Lactulose** (Oral: 3.1-3.7 g/5 ml lactulose in a syrup base) long term to target 2-3 soft stools/day, with a **high-quality protein supplement** of minor amount of **yogurt** or **cheddar cheese**. Monitor bile acids, with attention paid to dropping albumin, BUN or cholesterol. SAMe and nutraceuticals as needed. **Ursodiol (**10-15 mg/kg p.o. q24h) can be considered as hepatoprotectant and to enhance bile flow. **Zinc** serum level keep between 200—500 ug/dl. If deficient then Tx zinc acetate 1-3 mg/kg/day. Gastrointestinal protectants are recommended if the patient is anorexic.

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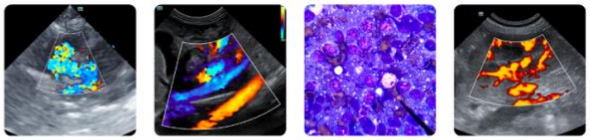

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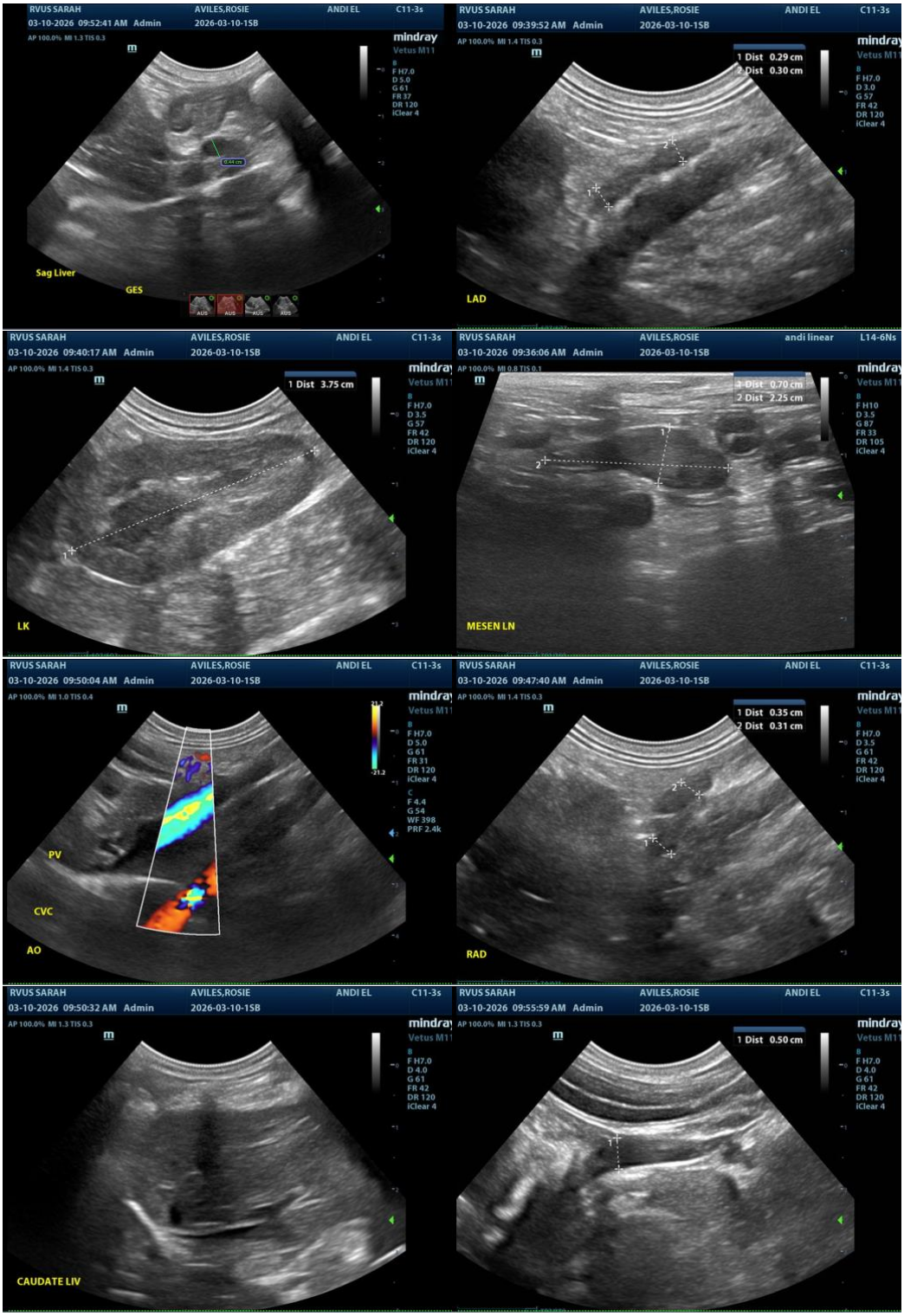

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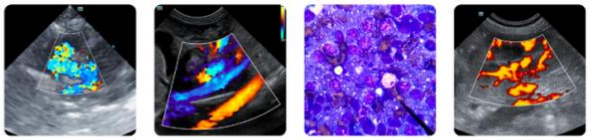

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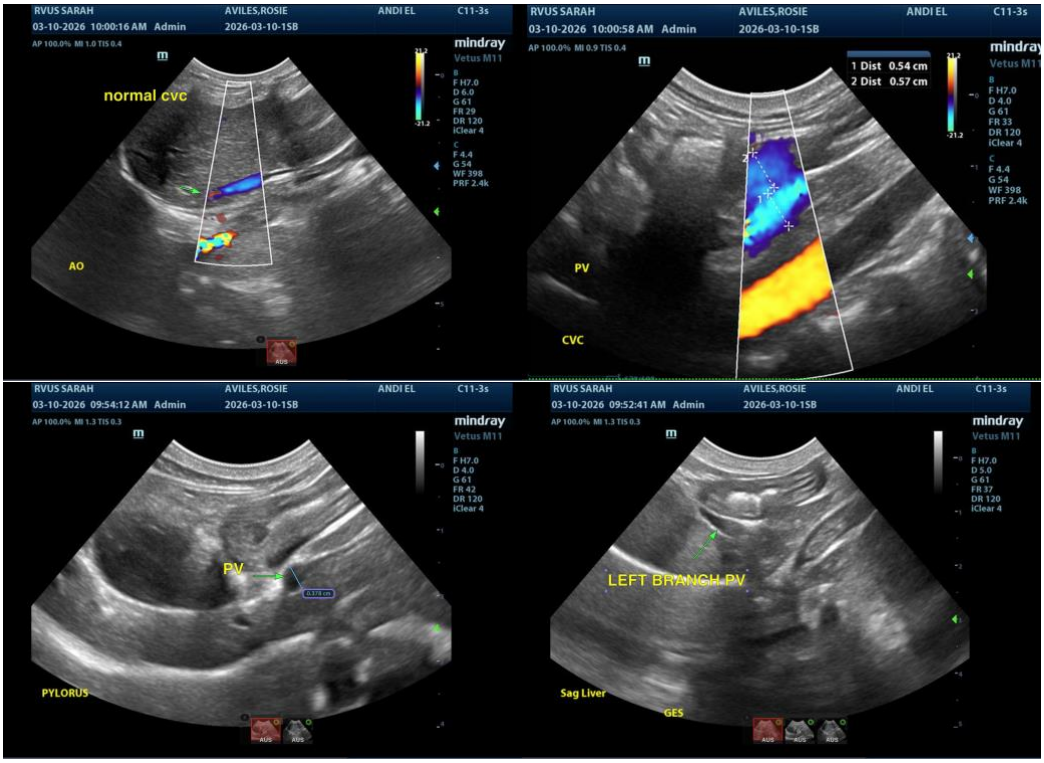

The information and recommendations provided are based on the images presented by the referring veterinarian/sonographer. No evaluation can be communicated regarding pathology that was not visible in the image/video clips provided.

Thank you for this referral. If the clinical or image interpretation does not parallel your findings or if I can be of any further assistance please contact me.

Eric Lindquist, DMV, DABVP(CFM), Cert. IVUSS,
CEO, Owner, Founder -- SonoPath.com
info@SonoPath.com